Professionally approved products.

Instruction Manual

RS 3D Printer

EN

1) GENERAL

This instruction manual contains important information regarding the installation, operation, maintenance and storage for RS 3D Printer. Please read these instructions carefully and save them for future reference.

2) WARNING

- Place RS 3D Printer in a dry environment and keep a safe distance from other objects, fire or water.
- Place RS 3D Printer on a stable horizontal platform.
- Please use RS 3D Printer in a ventilated environment because of potential slight smell during printing, but keep away from the air vent.
- To avoid nozzle blocking, please do not heat up the extruder before feeding the filament.
- Do not touch or remove the power cord or USB cable, or pull out the SD card during printing.
- Never touch the extruder or building plate by any parts of your body or anything which is easy on fire during printing, to avoid skin damage or fire.
- Gloves are required to remove the models from the building plate to avoid cutting, scratching or burning.
- During online printing, the computer cannot be in sleep mode.

3) WORKING CONDITIONS AND TECHNICAL DATA

Printer Size: 298×221×403mm

Printing Size: 150×150×140mm

Layer Thickness: 0.18～0.3mm (0.2mm recommended)

Speed: 30-150 cm^3/h

Net Weight: 7.5kg

Material: PLA

Printing Temperature: PLA 220-230°C

Power Input: 100 - 240V47/63Hz1.6A

Output: 12V/DC5.3A

Maximum Power: 63.6W

File format: STL/X3G/CODE

Compatible system: Windows XP/Vista/Win7/Win8/Win 8.1

Operating software: DoraWare-W

Environment Temperature: 5℃～35℃

Relative Humidity: 30%～90%

4) ACCESSORIES

All of the following accessories are in the tool box.

Shovel

Chisel

Cut pliers

Tweezers

Allen wrench and screw

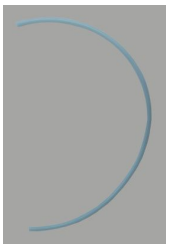
Clips

Power adapter and power cord

USB Cable

Build plate

Acupuncture Needle



Teflon tube filament guide

Gloves

Filament tube guide

Spool holder

SD card 2G

(Pic 1.2-01)

5) SOFTWARE INSTALLATION

Notice:

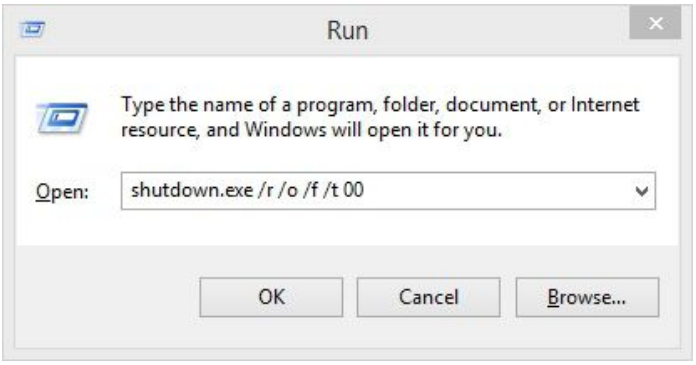
- The following installation of drivers and software is for Windows XP, 7, 8 and 8.1 system. For Windows Vista or XP Lite, please consult your local retailer. For Mac OS, please contact your local retailer for Replicator G.Please DO NOT use other open source Replicator G, because they

might be not compatible with RS 3D Printer.

- The driver for software is in the SD card. Please copy the driver to your pc.
- Please shutdown all firewalls or antivirus software before installing Doraware.
- “Disable Driver Signature Enforcement” is required for Windows 8 or 8.1. Please follow the instruction below.
- After running the driver, Windows 7 will install the driver automatically.

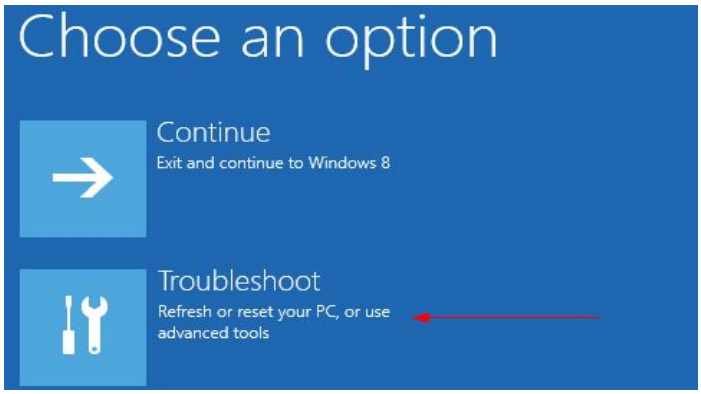
5.1 Disable Driver Signature Enforcement for Windows 8 or 8.1

5.1.1 Press [WIN] and [R] on your keyboard, enter command [shutdown /r /o /f /t 00], and click the [OK] button. (Pic 5.1-01)


Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
shutdown.exe /r /o /f /t 00
OK
Cancel
Browse...

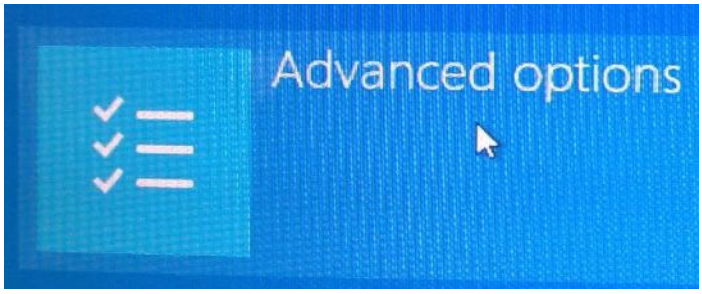
(Pic 5.1-01)

5.1.2 System will restart to a [Choose an option] screen, then select [Troubleshoot]. (Pic5.1-02)



(Pic 5.1-02)

5.1.3 Select [Advanced options] from [Troubleshoot] screen. (Pic 5.1-03)

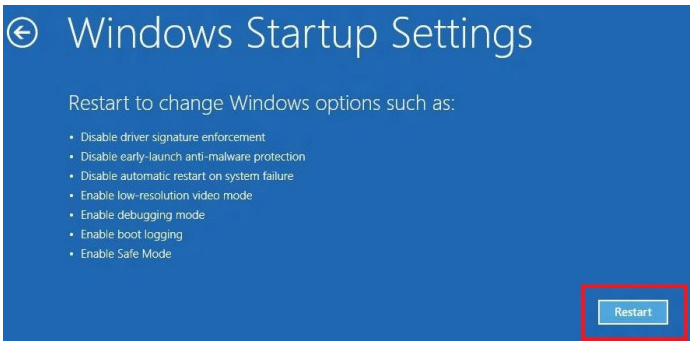


(Pic 5.1-03)

5.1.4 Select [Startup Settings] from [Advanced options] screen. (Pic 5.1-04)

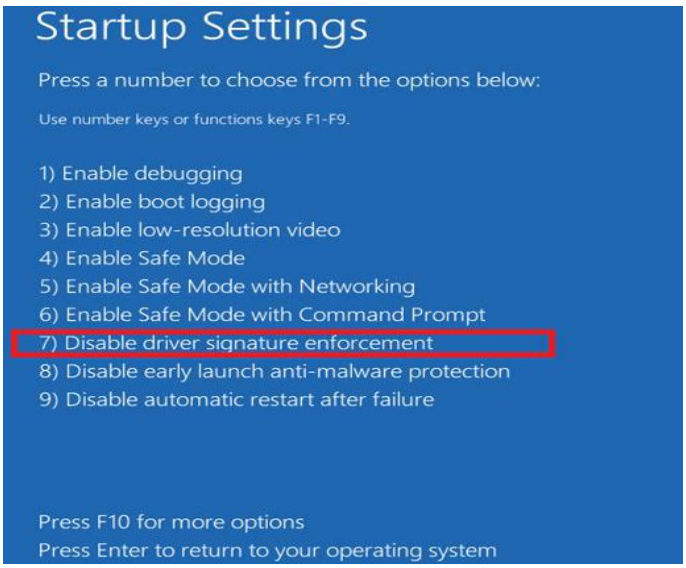
(Pic 5.1-04)

5.1.5 Click [Restart] button System will restart to [Advanced Boot Options] screen. (Pic 5.1-05)



(Pic 5.1-05)

5.1.6 Select [Disable Driver Signature Enforcement] or press [F7] on your keyboard, then restart. (Pic 5.1-06)

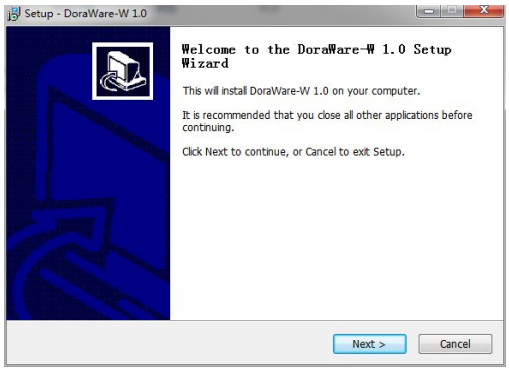

Startup Settings
Press a number to choose from the options below:
Use number keys or functions keys F1-F9.
1) Enable debugging
2) Enable boot logging
3) Enable low-resolution video
4) Enable Safe Mode
5) Enable Safe Mode with Networking
6) Enable Safe Mode with Command Prompt
7) Disable driver signature enforcement
8) Disable early launch anti-malware protection
9) Disable automatic restart after failure
Press F10 for more options
Press Enter to return to your operating system

(Pic 5.1-06)

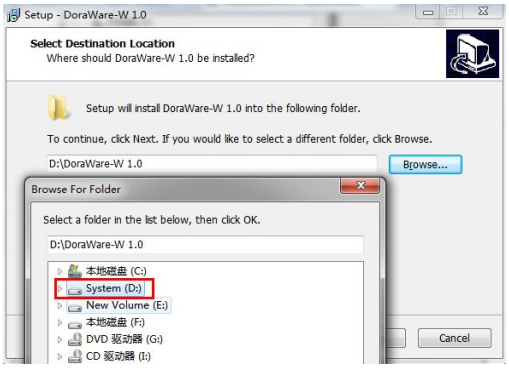
5.2 Driver Installation for Windows 8 or 8.1

5.2.1 Double-click English-Setup.exe. Click [more] and select [allows all programs].

5.2.2 Select [next], then select [Browse] to change [Destination Location]. Select a folder, click [next]. (Pic 5.2-01 to Pic 5.2-02)

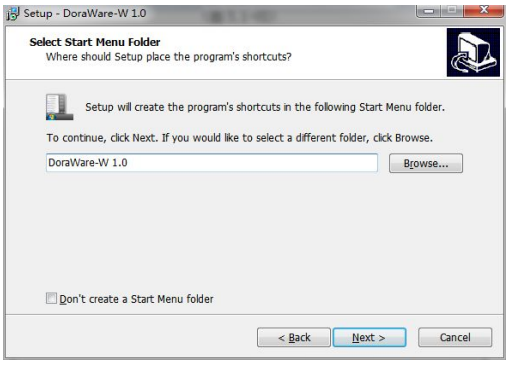

Setup - DoraWare-W 1.0
Welcome to the DoraWare-W 1.0 Setup Wizard
This will install DoraWare-W 1.0 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

(Pic 5.2-01)


Setup - DoraWare-W 1.0
Select Destination Location
Where should DoraWare-W 1.0 be installed?
Setup will install DoraWare-W 1.0 into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
D:\DoraWare-W 1.0
Browse...
Browse For Folder
Select a folder in the list below, then click OK.
D:\DoraWare-W 1.0
本地磁盘 (C:)
System (D:)
New Volume (E:)
本地磁盘 (F:)
DVD 驱动器 (G:)
CD 驱动器 (I:)
Cancel

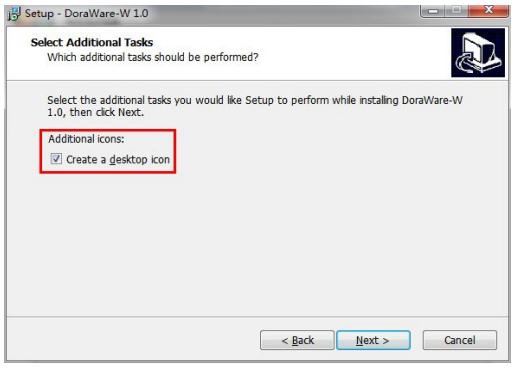
(Pic 5.2-02)

5.2.3 Click [next]. (Pic 5.2-03)


Setup - DoraWare-W 1.0
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
DoraWare-W 1.0
Browse...
Don't create a Start Menu folder
< Back
Next >
Cancel

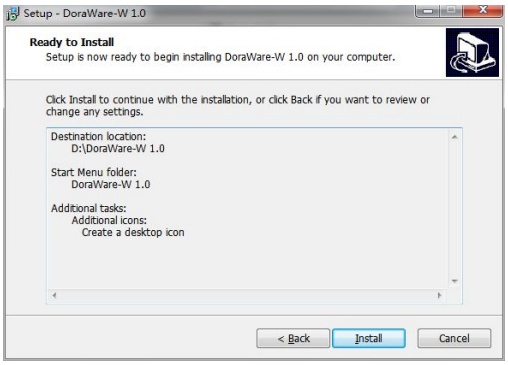
(Pic 5.2-03)

5.2.4 Select [Create a desktop icon], then select [next]. (Pic 5.2-04)


Setup - DoraWare-W 1.0
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing DoraWare-W 1.0, then click Next.
Additional icons:
Create a desktop icon
< Back
Next >
Cancel

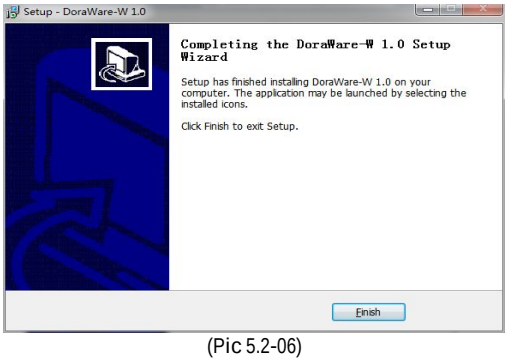
(Pic 5.2-04)

5.2.5 Select [install]. (Pic 5.2-05)


Setup - DoraWare-W 1.0
Ready to Install
Setup is now ready to begin installing DoraWare-W 1.0 on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
D:\DoraWare-W 1.0
Start Menu folder:
DoraWare-W 1.0
Additional tasks:
Additional icons:
Create a desktop icon
< Back
Install
Cancel

(Pic 5.2-05)

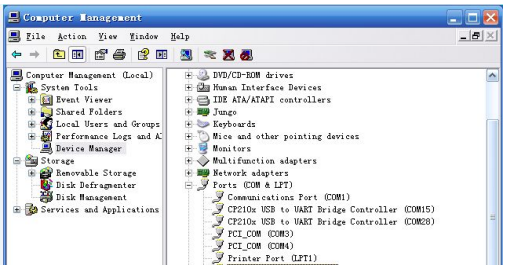
5.2.6 Select [Finish] to complete software installation. (Pic 5.2-06)


Setup - DoraWare-W 1.0
Completing the DoraWare-W 1.0 Setup Wizard
Setup has finished installing DoraWare-W 1.0 on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Finish

(Pic 5.2-06)

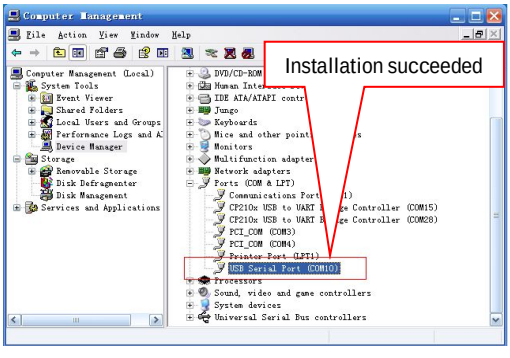
5.3 Confirm installation for Windows 7, 8 or 8.1

5.3.1 Right click「Computer」, select「Manage」, and then select「Device Manager」. (Pic 5.3-01)



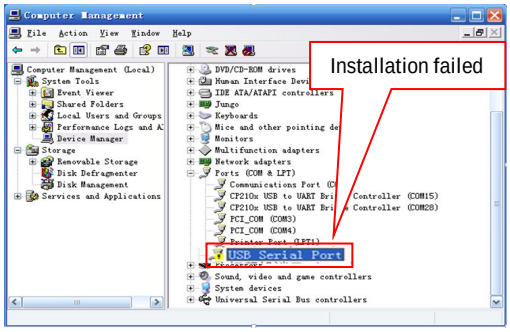
(Pic 5.3-01)

5.3.2 Select [Ports (COM&LPT)], no [?] or [!] icon ahead of [USB Serial Port] means the driver is installed successfully. (Pic 5.3-02)



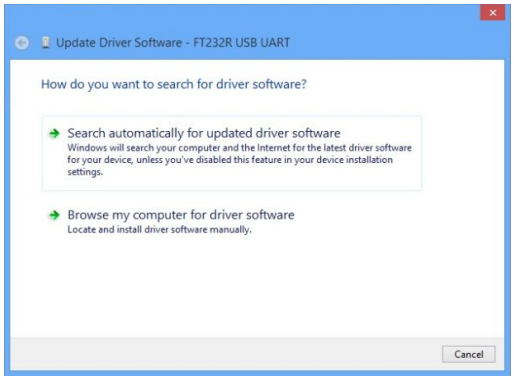
(Pic 5.3-02)

5.3.3 If failed, right-click [Ports (COM & LPT)], and select [Scan for hardware changes]. (Pic 5.3-03)



(Pic 5.3-03)

5.3.4 Select [Browse my computer for driver software].


Update Driver Software - FT232R USB UART
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

(Pic 5.3-04)

5.3.5 Select [Browse]. (Pic 5.5-05)

Update Driver Software - FT232R USB UART
Browse for driver software on your computer
Search for driver software in this location:
C:\WTDriver\drivers
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device and all driver software in the same category as the device.
Next
Cancel

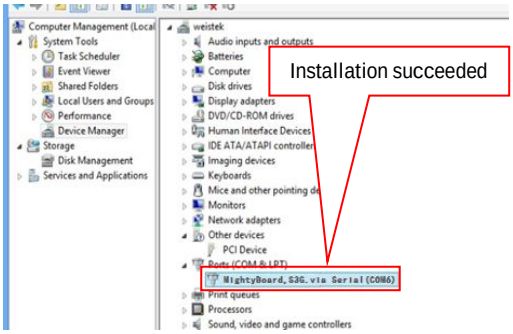
(Pic 5.3-05)

5.3.6 Select [Install] to re-install the driver. (Pic 5.3-06)

Windows Security
Would you like to install this device software?
Name: CDM Driver Package
Publisher: Future Technology Devices International ...
Always trust software from "Future Technology Devices International ...".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

(Pic 5.3-06)

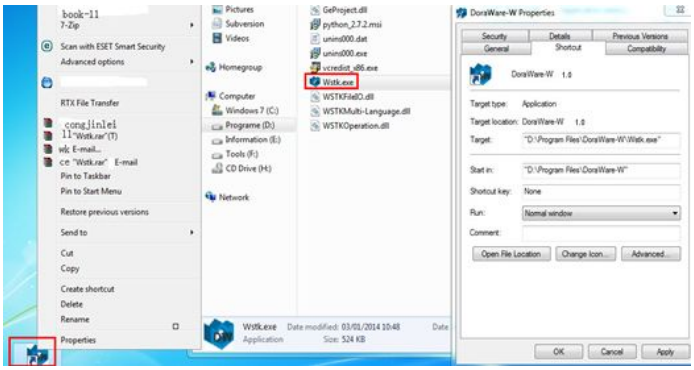
5.3.7 Click [+] ahead of [Ports (COM&LPT)]. A serial port means the driver is installed successfully. (Pic 5.3-07)



(Pic 5.3-07)

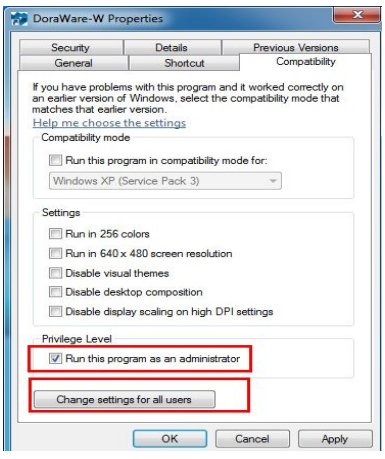
5.4 Run as an administrator for Windows 7, 8 or 8.1

5.4.1 Right-click the desktop icon or Wstk.exe under installation directory. (Pic 5.4-01)



(Pic 5.4-01)

5.4.2 Select [Run this program as an administrator] and [change settings for all users], then [Apply], and then select [OK]. (Pic 5.4-02)


DoraWare-W Properties
Security
Details
Previous Versions
General
Shortcut
Compatibility
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.
Help me choose the settings
Compatibility mode
Run this program in compatibility mode for:
Windows XP (Service Pack 3)
Settings
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Disable desktop composition
Disable display scaling on high DPI settings
Privilege Level
Run this program as an administrator
Change settings for all users
OK
Cancel
Apply

(Pic 5.4-02)

6) PREPARATION FOR PRINTING

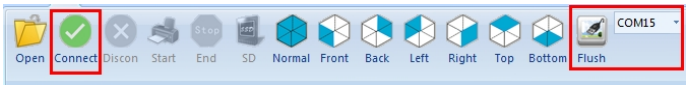
Notice: Please insert the SD card into RS 3D Printer before printing, otherwise the software will not be able to connect RS 3D Printer. If RS 3D Printer is disconnected with your pc due to interruption, please pull out and re-insert the USB cable.

6.1 Building plate Calibration and Z-height Measurement

Each RS 3D Printer is pre-calibrated, while the building plate and the Z-height may be affected during transportation.

6.1.1 Turn on the Power Switch of RS 3D Printer, and connect your pc with RS 3D Printer by the USB cable. Open DoraWare-W 1.0, click [Flush] and select the Combo, then click [Connect] to connect RS 3D Printer.

Notice: each RS 3D Printer has a different Combo Number. In this case, the Combo Number is COM15. The Combo Number can also be traced in the Device Manager. (Pic 6.1-01)

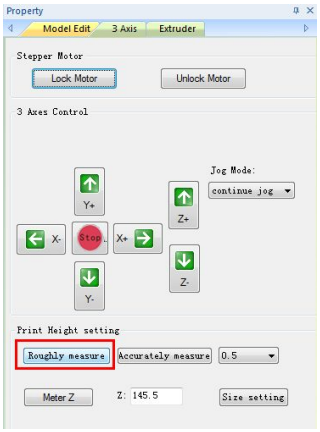


(Pic 6.1-01)

6.1.2 The [Connect] Icon turns grey when the connection is succeeded. (Pic 6.1-02)

(Pic 6.1-02)

6.1.3 Click [3 Axis] and then click [Roughly measure]. (Pic 6.1-03)



(Pic 6.1-03)

6.1.4 The building plate should be calibrated to horizontal before printing to guarantee printing quality.

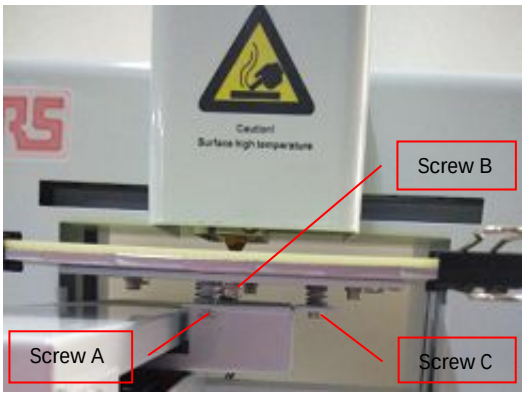
(Pic 6.1-04)

6.1.5 Select accurately measurement value on the right of the [Accurately measure] button, then click [Accurately measure] to move the building plate step by step, until there is only 0.3mm between the building plate and the nozzle. Choose the parameter and click the direction you want to move.

6.1.6 Put a business card between the nozzle and the building plate. The correct height is that no room left between the nozzle and the building plate, while not damaging the business card. (Pic 6.1-05)

(Pic 6.1-05)

6.1.7 Keep the extruder still, move the building plate forward and backward, and adjust the screw A or screw B (the ones with spring) beneath the building plate, to ensure the same distance (0.3mm) between the nozzle and the building plate at different points. Click [Accurately measure] to adjust the Z-height when the distance is not 0.3mm. (Pic 6.1-06)

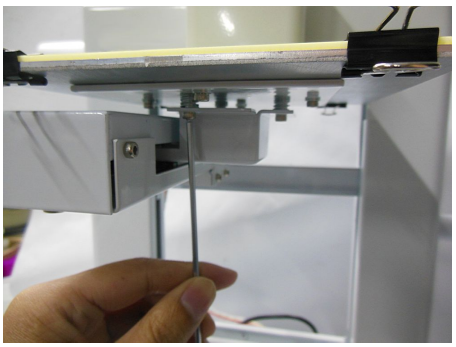


(Pic 6.1-06)

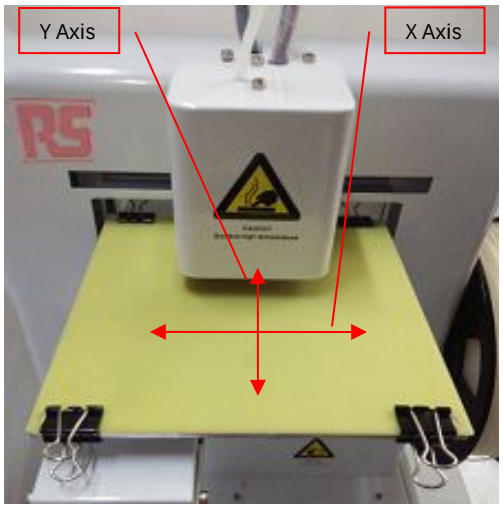
Use the Allen Wrench in the tool box to adjust the building plate by tightening or loosening the screws beneath the building plate to adjust Z-height. (Pic 6.1-07)

Twist the screw clockwise: to increase the distance between the nozzle and the building plate.

Twist the screw anticlockwise: to reduce the distance between the nozzle and the building plate.

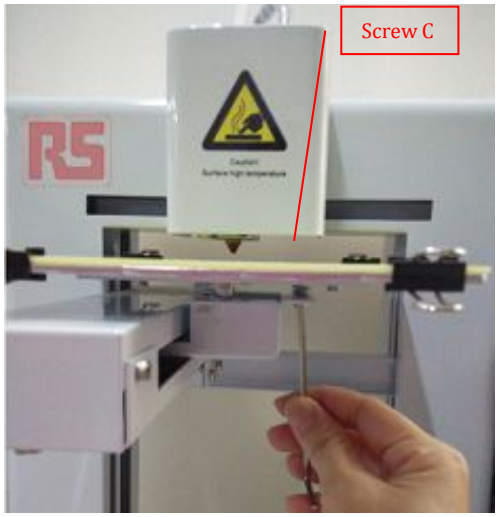


(Pic 6.1-07)



(Pic 6.1-08)

6.1.8 Move the building plate and the extruder head to place the nozzle in the center of the building plate, and keep the building plate still. Move the extruder from left to right, and adjust Screw C (the one with spring) beneath, to ensure the same distance (0.3mm). Click [Accurately measure] to adjust the Z-height when the distance is not 0.3mm. (Pic 6.1-09)

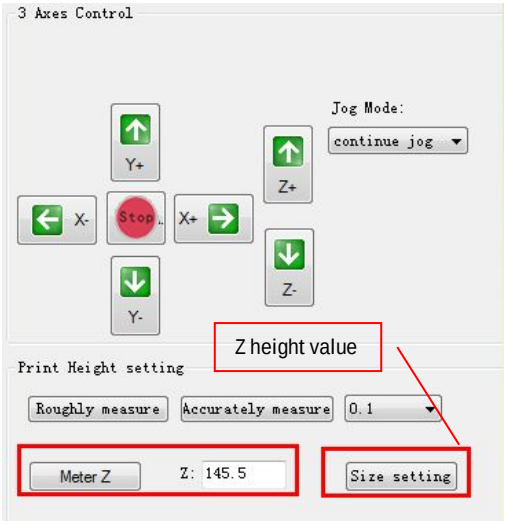


(Pic 6.1-09)

6.1.9 After adjusting the building plate, click [Meter Z], and the building plate will go down again and stop when touching the Limit Switch.

Click [Size setting], new data will be saved on the program.

Notice: each RS 3D Printer may have different Z-height. In this case, it is 145.5mm. Please follow this User Manual and save the Z-height of RS 3D Printer. (Pic 6.1-10)



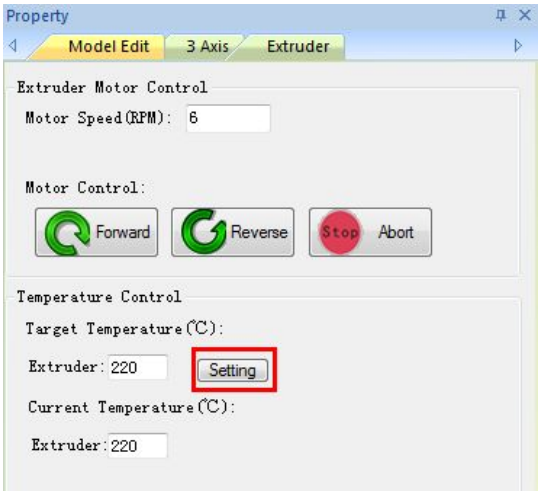
(Pic 6.1-10)

Print the models in the SD card to test the Z-height. If the Z-height is too low (too much distance between the nozzle and the building plate), please add 0.2mm. Likewise, please minus 0.2mm if the Z-height is too high (too less distance between the nozzle and the building plate).

When Z-height is changed, re-generating Gcode is not required for online printing; re-generating Gcode and re-saving x3g are required for offline printing.

6.2 Temperature Setting

6.2.1 Set target temperature at 220℃ and click [Setting]. (Pic 6.2-01)

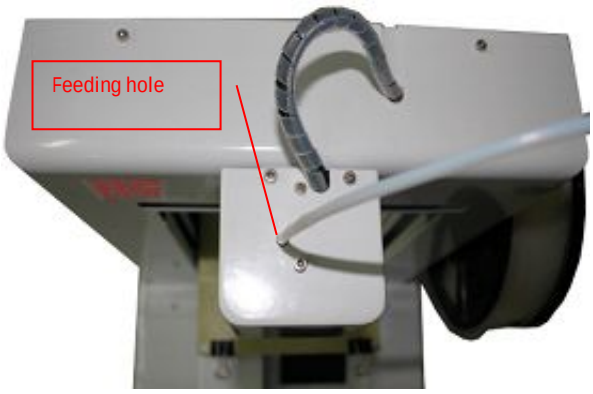


(Pic 6.2-01)

7) FILAMENT

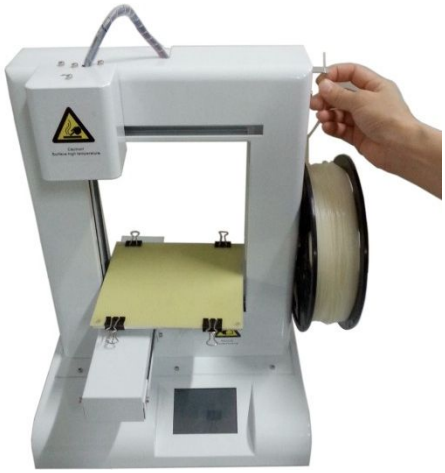
7.1 Feed the filament

Notice: To avoid blocking the extruder, please make sure the filament is fed through the center of the hole. (Pic 7.1-01)



(Pic 7.1-01)

7.1.1 Load the filament spool on the spool holder, and install the filament tube guide in the tool box on RS 3D Printer by a screw. (Pic 7.1-02)

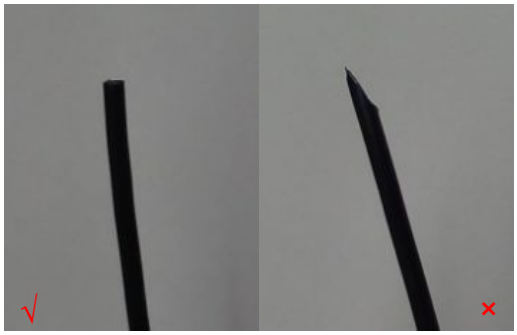


(Pic 7.1-02)

7.1.2 Pass the filament through the filament tube guide and load the filament through the Teflon tube filament guide. (Pic 7.1-03)

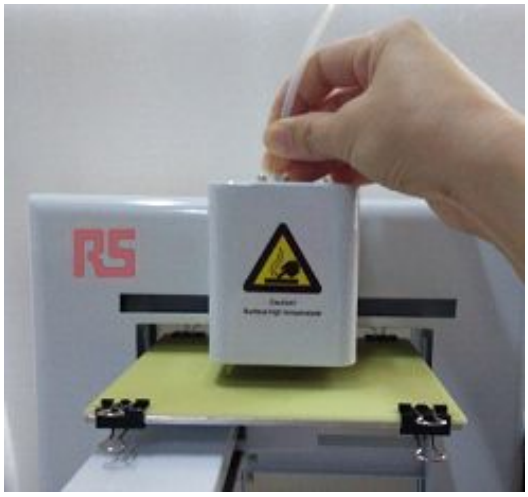
(Pic 7.1-03)

7.1.3 Straighten the free end of the filament and cut the filament vertically with the Cut pliers. (Pic 7.1-04) Put the free end of the filament into the hole in the middle of the extruder head, and feed the filament until it submerges into the hold.

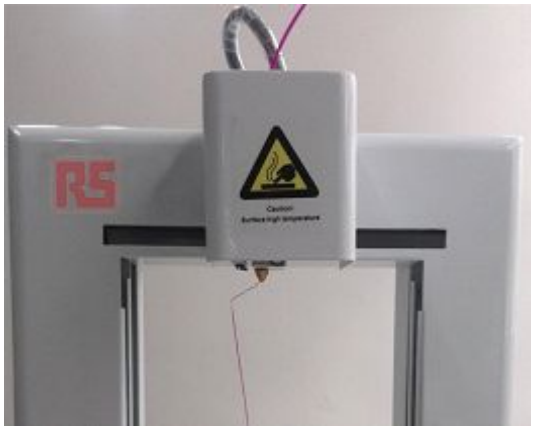


(Pic 7.1-04)

7.1.4 After reaching the Target Temperature (220℃, see 4.2.1), click 「Forward」 until the filament emerges from the nozzle. Click 「Stop」 to discontinue the process or it will stop automatically after 10 seconds. (Pic 7.1-05 to Pic 7.1-06)



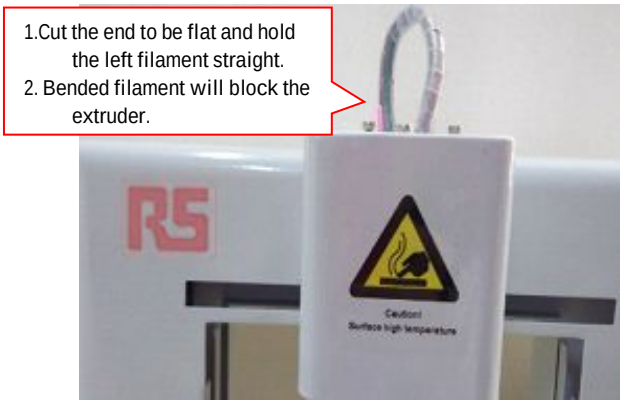
(Pic 7.1-05)



(Pic 7.1-05)

7.2 Change the filament

7.2.1 When the filament is about exhausted but your model has not finished yet, changing filament is required to continue the printing. The free end of the filament should be cut vertically (Pic 7.2-01) and then feed the free end of the new filament until the new filament emerges from the nozzle.



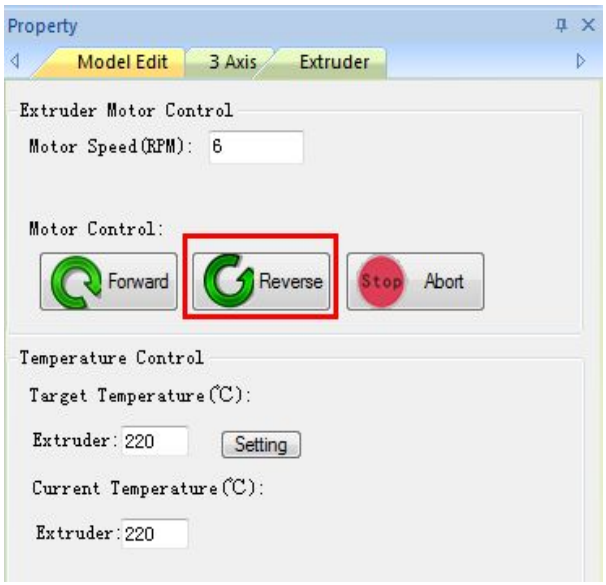
(Pic 7.2-01)

Keeping pushing down the leftover filament until the filament get stuck into the gear. Then relax your hands after 20 seconds.

(Pic 7.2-02)

7.3 Reverse the filament

To reverse filament, the extruder should be heated up to 220℃. Then click [Reverse] until the filament is totally reversed from the extruder. Click [Stop] to discontinue the process or it will stop automatically after 10 seconds. (Pic 7.3-01)

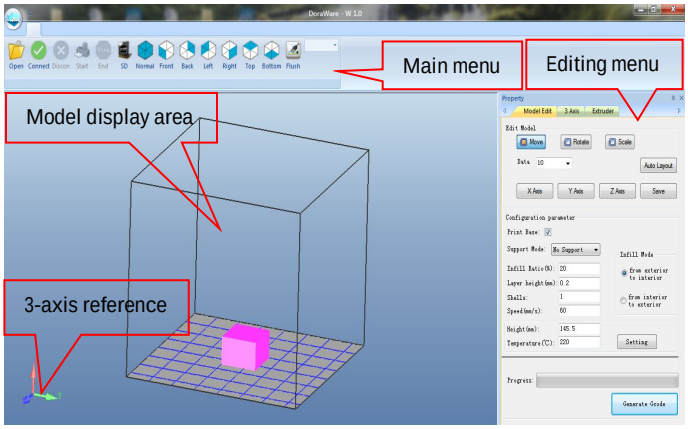


(Pic 7.3-01)

8) MAINTENANCE INSTRUCTION

8.1 Functions

8.1.1 Software interface(Pic 8.1-01)



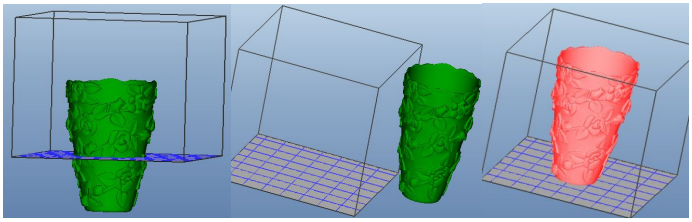
(Pic 8.1-01)

8.1.2 Click the model before editing. When the model is selected, the name, size and route of the model will display on the top of the left side. (Pic 8.1-02/03)

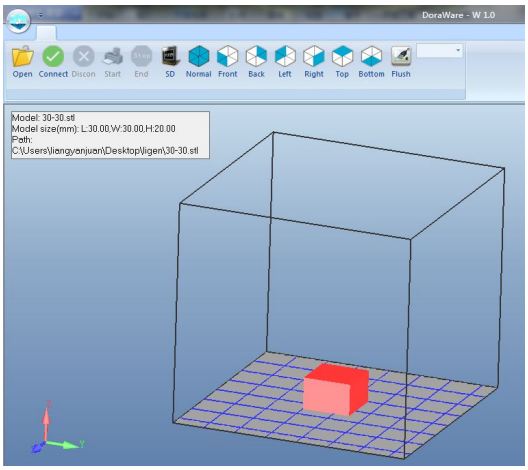
Red Model: selected

Pink Model: unselected

Green Model: out of printing size

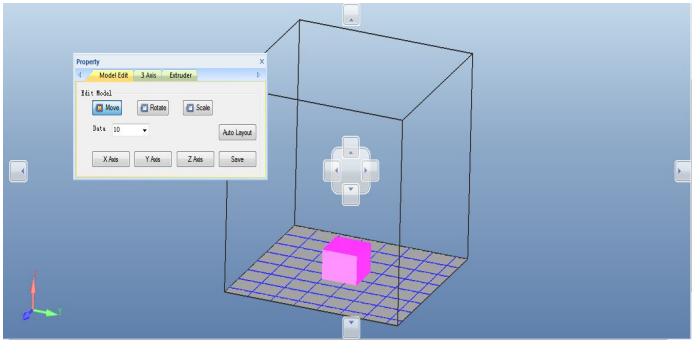


(Pic 8.1-02)



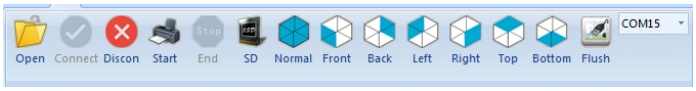
(Pic 8.1-03)

8.1.3 Left click property and drag. The editing icon can be placed anywhere within the software interface. (Pic 8.1-04)



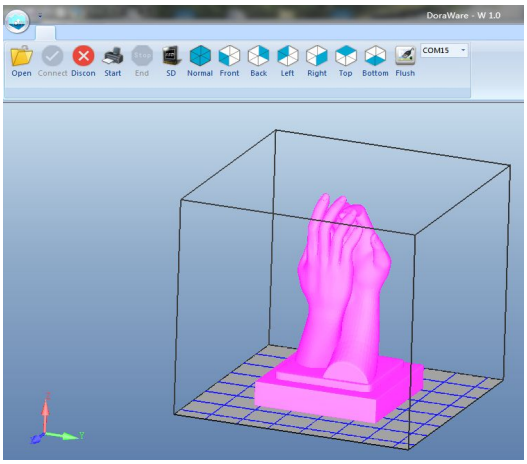
(Pic 8.1-04)

8.1.4 There are 14 function icons in total in the menu. (Pic 8.1-05)



(Pic 8.1-05)

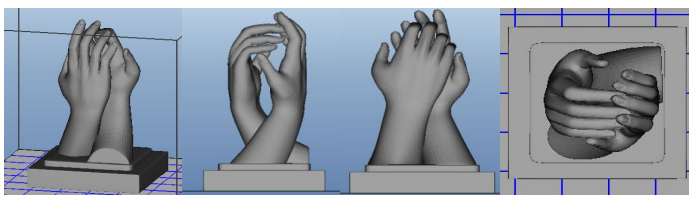
8.1.5 Open a STL file in your pc. (Pic 8.1-06)



(Pic 8.1-06)

8.1.6 Adjust the viewing direction of the model by clicking the seven view icons. (Pic 8.1-07)

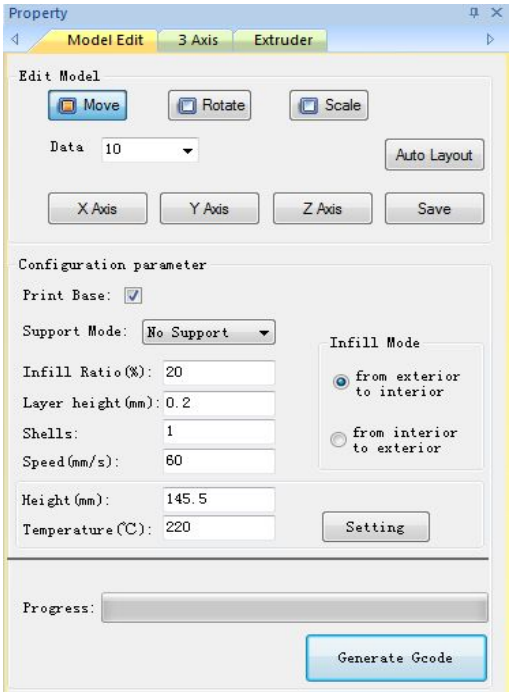
[Normal], [Front], [Back], [Left], [Right], [Top], and [Bottom].



Normal Front Left Top

(Pic 8.1-07)

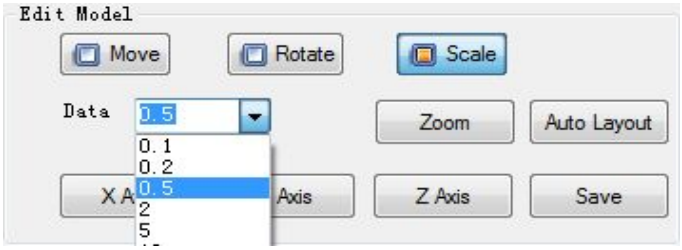
8.1.7 The Property on the right side contains: [Model Edit], [3 Axis], and [Extruder]. Model Edit includes: [Edit Model], [Configuration parameter] and [Generate Gcode]. (Pic 8.1-08)



(Pic 8.1-08)

8.1.8Model Edit

In the [Data] column, you can select or enter a number for [Move], [Rotate] or [Scale]. (Pic 8.1-09)



(Pic 8.1-09)

1. Move: before generating Gcode, the model should be centered and placed on the bottom of the printing area.

Click [Move] to move the model by X/Y/Z Axis or click [Auto Layout].

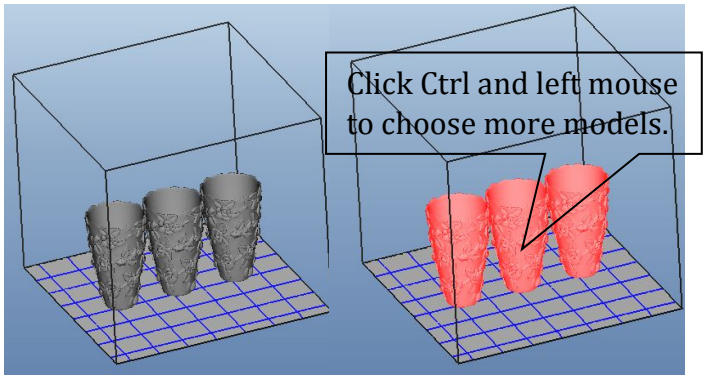
AutoLayout: to place the lowest points of the model to the bottom of the building area. It may not work for some models because such models have no horizontal bottom surface.

2. Rotate: click [X Axis], [Y Axis] or [Z Axis] to rotate the model by X\Y\Z axis.

3. Scale: click [Zoom] to resize the model proportionally or click [X Axis], [Y Axis] or [Z Axis] to resize the model by X\Y\Z axis.

If you are not satisfied with your edition, right click and select [Reset]. After edition, please click [save].

To print multiple models at one time, click [Ctrl] on your keyboard and your left mouse at the same time to choose multiple models. (Pic d and Pic e)



Pic d Pic e

8.2Setting

Set the parameter according to the structure and size of model.

8.2.1 Print Base

With Print Base:

We recommend printing with print base for most models.

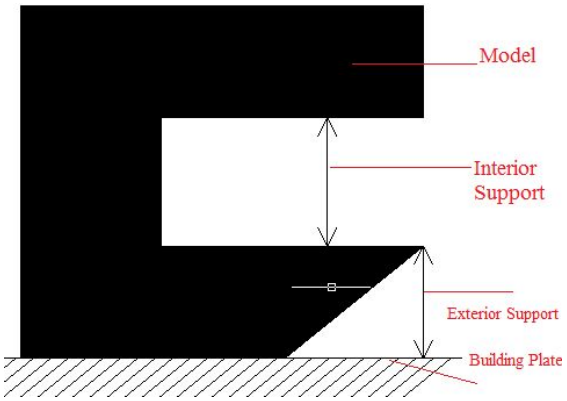
Without Print Base:

For printing without print base, an extremely flat building plate and correct Z-height are required, as well as the model is within 8cm*8cm (x axis * y axis). The models without print base will have the extra smooth bottom surface.

8.2.2 Support Mode: No Support, Exterior Support and Interior Support. (Pic 8.2-01)

Exterior Support: support between building plate and the model.

Interior Support: support inside the model.



(Pic 8.2-01)

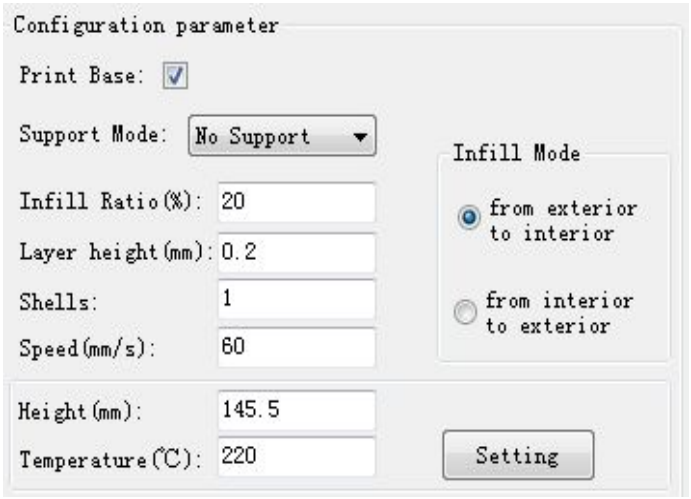
8.2.3 Infill Ratio

For solid model: 95%-100%. 95% is recommended because of the dilation of PLA during printing.

For other model: 10%-30% is the common choice to save filament.

8.2.4 Shells: the outer layers of the model.

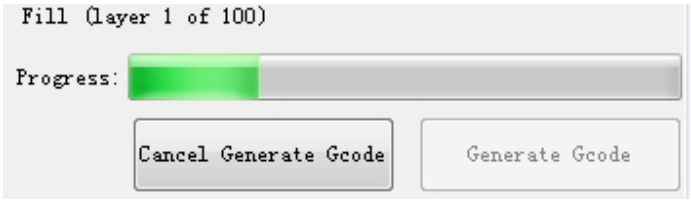
8.2.5 Speed: normally from 30-80. Optimum speed is 60. (Pic 8.2-02)



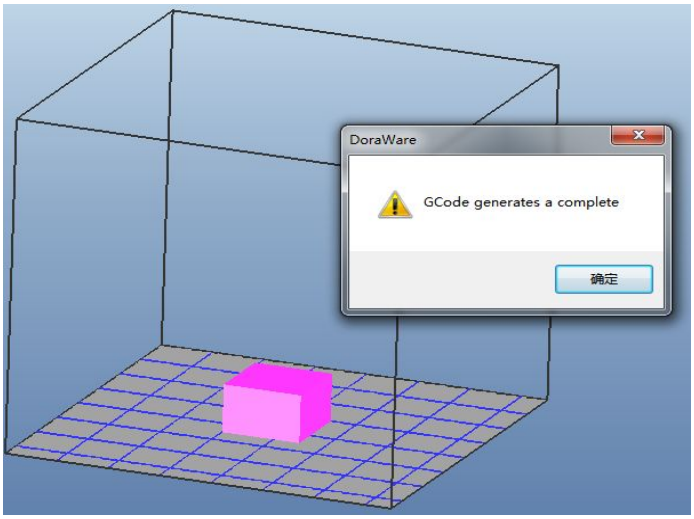
(Pic 8.2-02)

8.3 Generate Gcode

When the parameter is set, click [Generate Gcode] and a green progress bar will appear. Please wait until the process is finished. (Pic 8.3-01 to Pic 8.3-02)



(Pic 8.3-01)

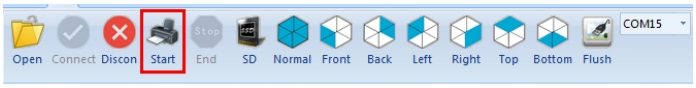


(Pic 8.3-02)

8.4 Start printing

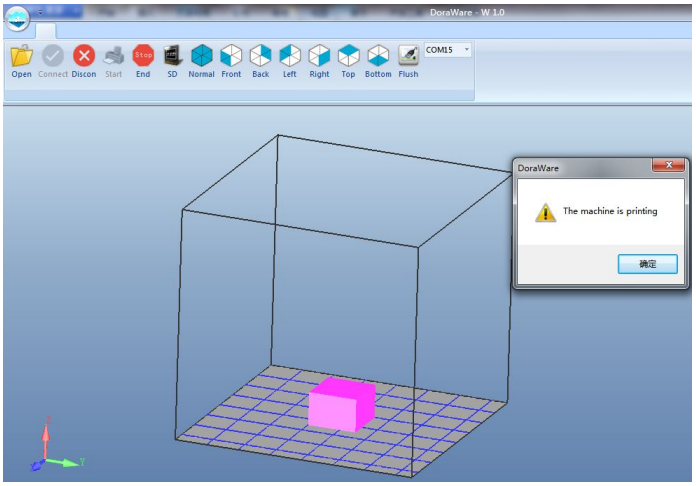
After generating Gcode, printing is available either online or offline.

8.4.1 For online printing, click [Start] to print after generating Gcode. (Pic 8.4-01)



(Pic 8.4-01)

During online printing, the interface in the right cannot be edited. (Pic 8.4-02)



(Pic 8.4-02)

When the printing process is abnormal, click [Discon] or [End] to stop printing. (Pic 8.4-03)

(Pic 8.4-03)

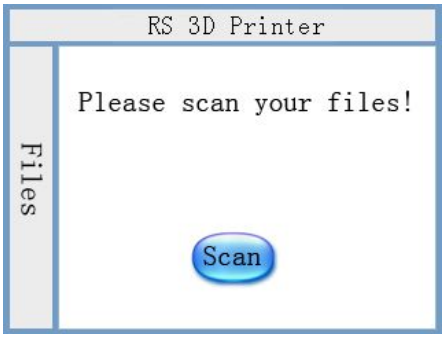
8.4.2 For offline printing, please click [SD] to save x3g file, and copy the x3g file to your SD card by the SD card reader, and then insert your SD card into RS 3D Printer to select printing file. (Pic 8.4-04)

(Pic 8.4-04)

Notice:

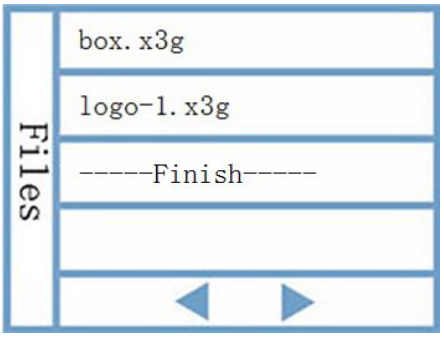
- RS 3D Printer recognizes SD card of 2GB only;
- Please use English alphabet or number within 20 digits as x3g file name;
- Please DO NOT place any x3g file in a subfolder of the SD card;
- Please wait until [Save the x3g file successful] shows. Please DO NOT close the software during [saving x3g file].

Select the files to print on the touch screen, for offline printing only. (Pic 8.4-05)



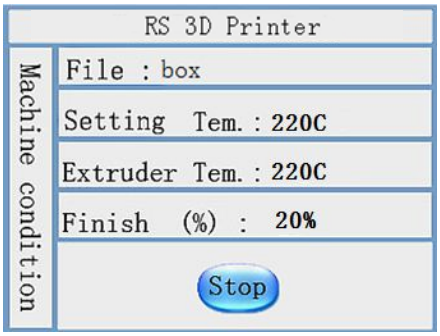
(Pic 8.4-05)

You can save multiple x3g files until the storage reaches 2GB. Touch any file to start print. (Pic 8.4-06)



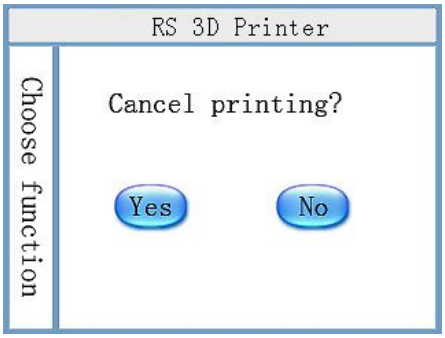
(Pic 8.4-06)

The touch screen will display file name, setting Temperature, Extruder Temperature and printing process. Touch [Stop] to stop printing. (Pic 8.4-07)



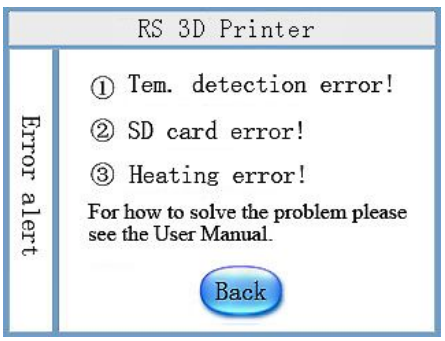
(Pic 8.4-07)

Click [Yes] or [No] to discontinue or continue printing.



(Pic 8.4-08)

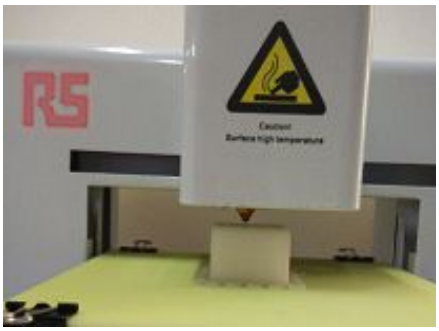
Error alert will show up if anything wrong during printing. (Pic 8.4-09)


RS 3D Printer
Error alert
① Tem. detection error!
② SD card error!
③ Heating error!
For how to solve the problem please see the User Manual.
Back

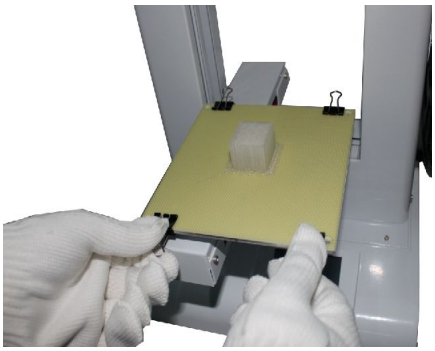
(Pic 8.4-09)

8.5 Printing is finished

Wear gloves to remove the model by hands. Shovel, cut pliers and other tools are very useful. (Pic 8.5-01 and 8.5-03)



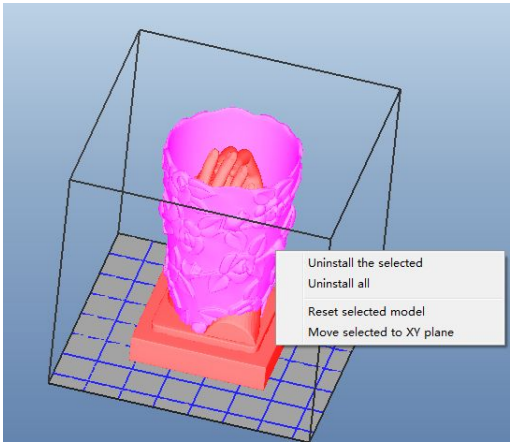
(Pic 8.5-01)



(Pic 8.5-02)

(Pic 8.5-03)

To print another model, choose the model and right click the mouse to remove the former one. Otherwise, two or more models will be displayed in the printing area. (Pic 8.5-04)



(Pic 8.5-04)

9) MAINTENANCE INSTRUCTION

Extruder Blocking

9.1.1 Connect RS 3D Printer with your pc, increase the extruder temperature from 220℃ by 5-10℃ each time, click [Forward] and push the filament by hand to extrude the filament until the filament emerges from the nozzle. (Pic 9.1-01)

9.1.2 If the nozzle is coated by filament, please heat up the extruder temperature at 220℃ and clean up the nozzle by clean towel.

(Pic 9.1-01)

9.1.3 Heat up the extruder temperature to 220°C. Click [Forward] to extrude the filament, use the Acupuncture Needle in the tool box to insert into the hole of the nozzle to clean up the nozzle up and down.

Notice: MUST wear gloves in the tool box. (Pic 9.1-02)

(Pic 9.1-02)

10) AFTER SALES SERVICE

Each RS 3D Printer has a unique identifier, which is an 11 digits series number. (Pic 10-01) Please provide this number with pictures/videos of your problem for after sales service.

(Pic 10-01)